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Special Programs

UK Office of Undergraduate Research

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Special Programs

Farm-in-the-City Day



The Agriculture Education Society, along with the UK FFA Alumni Association, was looking for a way to further develop both clubs' potential through professional development. Recognizing the lack of agriculture programs in the Fayette County School system, the clubs knew they wanted to educate students on the importance of agriculture. Feeling the need to better educate students, the clubs developed Farm-in-the City Day. The first Farm-in-the City Day was a great success with stations educating elementary through middle school students on goats, beef, dairy, soil, chickens, rabbits, and horticulture. Amazed by the number of students who had never been in contact with these live animals, the clubs planned another Farm-in-the City Day. Even if they can only educate a small portion of the Fayette County students, they hope that the students leave with a little more knowledge of basic agriculture. It appalled the club members that a county with so many agriculture aspects and industries as Fayette County has only one agriculture program in place to educate the youth of tomorrow.

B.I.G. B.L.U.E. III Balloon-Launched Experiment www.engr.uky.edu/bigblue

B.I.G. B.L.U.E. (Baseline inflatable Glider Balloon-Launched Unmanned Experiment) is a flight experiment developed, designed, built and flown primarily by students in the College of Engineering at the University of Kentucky. BIG BLUE was conceived as a demonstration of unique technologies with potential for application for Mars exploration. A team of over 40 undergraduate students from mechanical and electrical and computer engineering designed, fabricated, tested, and flew a balloon-launched, high altitude, inflatable-wing glider. The first flight of the BIG BLUE occurred May 3, 2003 in Ft. Collins, CO, supported by Edge of Space Sciences (EOSS), an amateur group of ham radio and high altitude ballooning enthusiasts. The Sponsors of BIG BLUE II were the NASA Workforce

Development Program via the KY Space Grant Consortium, in partnership with engineers at ILC Dover, Inc, designers of NASA's spacesuits and other engineered soft goods products, and members of EOSS.

There was another successful launch for BIG BLUE, this time version III, April 30, 2005 in Windsor, Colorado. Big Blue weighed 23.7 pounds and reached 97,873 feet in altitude before bursting. The inflated wings continued ascent with the balloon to the maximum altitude and then descended under a parachute for recovery. The wing pressurization maintained a wing shape suitable for flight throughout, demonstrating the feasibility of inflatable wing technology for Mars exploration. The onboard camera captured the wing deployment. Other images from the edge of space include the moon and stars, while images from closer to ground level show the snowy countryside and the recovery team moving into position for the touchdown! Big Blue II was part of the "Extreme Textiles: Designing for High Performance," an exhibition at the Smithsonian Institution's Cooper-Hewitt, National Design Museum in New York City from April 8 through October 30, 2005. The exhibition explored recent advances in technical textiles from a wide range of areas, including architecture, apparel, medicine, transportation, aerospace, and environment.

Wildcat Pulling Team www.bae.uky.edu/qscale/tractor.htm

The UK Wildcat Pulling Team placed 3rd overall in this year's International Quarter-Scale Tractor Design Competition sponsored by the American Society of Agricultural Engineers (ASAE), continuing UK's string of top-three finishes. UK won the Maneuverability Award for the 2nd



Special Programs (CONT.)

year in a row. In addition, the teams staged a cook-off, and the UK group won that competition for the 6th consecutive year. The competition was held in East Moline, Illinois, in early June. A total of 24 teams from the US and Canada competed. UK's design entry featured joy stick control of all tractor functions and exceptional graphics, among numerous other new design features. Teams were judged in four categories: written design report, team presentation, individual design judging, and a performance competition, which ultimately is the tractor pull. The objective of this competition is for students to be involved in all aspects of developing a product for the marketplace — a quarter-scale pulling tractor.

Each year, student members of the American Society of Agricultural Engineers enter a design competition for which they design and build a quarter-scale pulling tractor, roughly the size of a lawn tractor, and take it to a national meeting. Each tractor costs more than \$10,000 to build. This approach allows students to see their design, and analyze it in terms of engineering components, the economy, the manufacturer, and the efficiency of the materials used to construct the project. Then, they have the opportunity to work in the shop and actually have hands-on experience with what it takes to manufacture their project.

Team Members: *Will Adams, Katherine Christian, Ben Clark, Evan Conrad, Blair Duguid, Ryan Figgins, Courtney Fisk, Spencer Guinn, Ryan Hillenbrand, Justin Jackson, Michael Kennedy, Brian Luck, Jamie Marsh, Alan Masterson, Brandon McDonald, Laurie Meszaros, Santosh Pitla, Michael Sama, Charlie Sorrell, Jonathon Waits, and Grant Wonderlich.* Team Advisors: *Dr. Scott Shearer, Mr. Tim Smith, Dr. Rich Gates, Dr. Tim Stombaugh, Dr. Larry Wells, and Mr. Matt Veal.*

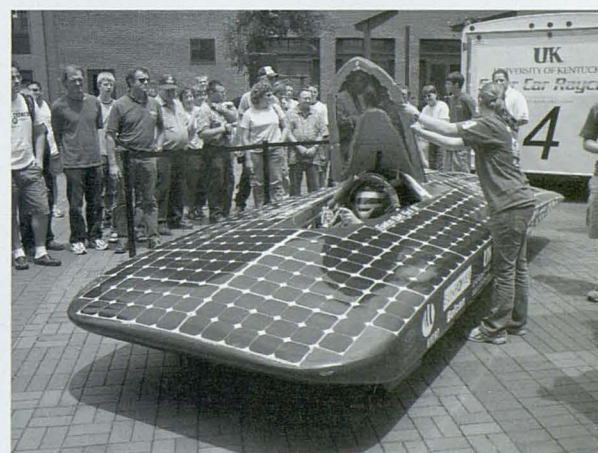
Solar Car Team

www.engr.uky.edu/solarcar

The Solar Car Team competed for the 3rd year in a row, but this year fell short of qualifying in the North American Solar Challenge 2005, in July in Austin, Texas, because they completed only 27 of the required 39 laps on the 2.9 mile long Texas World Speedway road course. The car ran at an average speed of 30 miles per hour. During a pit stop to change drivers, the power tracker capacitors were overloaded, which ended any qualifying hopes. Improved fabrication methods and a lighter battery pack were major factors in the new model's weight of just 635 pounds, compared to the previous model's 1,000 pounds. Many positive comments were received from other teams

and race officials regarding the present car. With a few design improvements, the car is expected to compete well next year. Named for the 1982 KY Derby Winner, the Gato del Sol took 4 years and \$70,000 to build. Its nickname is the "Blue Bomb," and it has shocks from a mountain bike and a steering wheel from a kid's dragster, as well as an aluminum chassis, an electric motor, 8 square meters of solar paneling on its fiberglass shell, and a top speed of approximately 80 miles per hour. It looks like something out of "Flash Gordon."

The project started as a student-run engineering project with support from the College of Engineering. The team consists of multi-disciplines that requires the best and most determined students. The team has individuals from electrical, chemical, and mechanical disciplines, as well as bio-systems, agriculture, and computer science engineering. The design of Gato del Sol 2, for next year's solar competition, is in the beginning stages and is expected to cost approximately \$100,000. About \$10,000 has been raised so far. For many students, the solar car is the most hands-on engineering experience they will have. Individuals who want to support the project can participate in the solar-car team's "adopt-a-cell" program by buying solar cells for \$20 each. (It takes more than 1000 cells to power the car. The \$20 covers the cost of the cell and fabricating it into a solar panel.) To learn more or make a contribution, visit the website www.engr.uky.edu/solarcar and click on "adopt-a-cell" to make financial donations. Contributions are tax deductible.





Wildcat Pulling Team's 1/4 scale tractor. See page 109.



Upcoming Undergraduate Scholarship Events and Deadlines

Kaleidoscope, Volume 4

The *University of Kentucky Journal of Undergraduate Scholarship* is published once each year, at the beginning of the fall semester. All contributions to the journal are refereed by a standing editorial board and guest referees and editors. Articles, reports, and other creative works may be submitted by any undergraduate student at the University of Kentucky. All submissions must be accompanied by an endorsement by a University faculty member who has agreed to attest to the scholarly quality of the work and to serve as faculty mentor for editing and final submission of the work. Detailed guidelines for submission are available at < www.uky.edu/kaleidoscope > .

Deadlines for Volume 5, Fall, 2006:

February 24, 2006: Electronic letter of intent to submit, including a brief description of the nature and contents of the proposed submission sent to the editor. (rst@uky.edu)(optional)

March 31, 2006: Complete submission prepared according to the guidelines delivered electronically to the editor. (rst@uky.edu)

May 1, 2006: Notification of acceptance/rejection and instructions for suggested/required revisions.

June 12, 2006: Final, revised submission delivered electronically to the editor.

National Conference on Undergraduate Research

"The mission of the National Conferences on Undergraduate Research (NCUR®) is to promote undergraduate research, scholarship and creative activity done in partnership with

faculty or other mentors as a vital component of higher education."

The 2006 NCUR conference will be held April 6-8, 2006, at the University of North Carolina, Asheville. Visit the NCUR Web site at <http://ncur.org/basics/index.htm> for general information on NCUR; visit < [http://ncur20@unca.edu](mailto:ncur20@unca.edu) or <http://ncur.unca.edu> > for details and deadlines for the conference.

Oswald Research and Creativity Awards

All current UK undergraduate students are eligible to submit a paper or other creative work to be considered for an Oswald Research and Creativity award. The competition categories in which papers and projects may be submitted include: (1) Biological Sciences; (2) Design (architecture, landscape architecture, interior design, etc.); (3) Fine Arts (film, music, painting, sculpture, videotape, etc.); (4) Humanities: Creative; (5) Humanities: Critical Research; (6) Physical and Engineering Sciences; and (7) Social Sciences. The **deadline for submission is March 3, 2006**. Visit the eUreKa! website at: www.uky.edu/eureka for details, application forms, and official rules. See pages 106-108 for winning submissions from last year's Oswald Awards program.

Office of Undergraduate Studies Research and Creativity Awards

As a means of promoting educational experiences for students, the Office of Undergraduate Studies offers Research and Creativity Grants during the summer term. The grants are intended to take advantage of the rich resources available through the libraries, the laboratories and, most

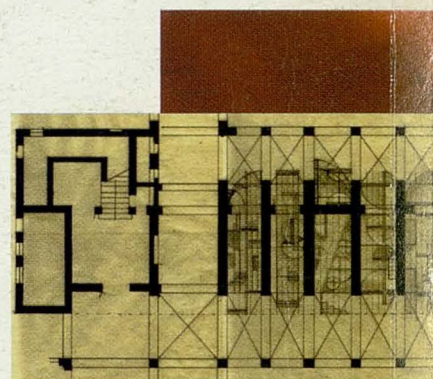
especially, the academic personnel at the University of Kentucky. Undergraduates in all areas of intellectual inquiry are eligible, and students at many different levels of matriculation have received support. The **deadline to submit applications is January 18, 2006**. For details regarding eligibility, and application forms visit the eUreKa! website at: www.uky.edu/eureka. See pages 96-100.

UK Undergraduate Research Program

The University of Kentucky Undergraduate Research Program (UKURP) creates research partnerships between first- and second-year students and faculty researchers. The program offers students the opportunity to work and learn alongside a research faculty member. Undergraduate students are given the real-life experiences of working in laboratories and other scholarly settings; developing a research abstract; presenting their projects at symposiums and professional conferences; publishing their findings; and meeting others in the international community of scholars. In other words, students are given a jump-start on their career. For more details and deadlines for applications, visit www.uky.edu/eureka/ukurp. See pages 94-95.

Additional Information

Additional information regarding undergraduate scholarship and creativity programs, conferences, competitions, and opportunities is posted on the Web site of the Office of Experiences in Undergraduate Research and Creative Activities, eUreKa! at www.uky.edu/eureka.



Kaleidoscope
eUreKa! Office
113 Bowman Hall
Lexington, KY 40506-0059